Notice of Allowability	Application No.	Applicant(s)	
	10/714,738	NICKERSON ET AL.	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *5/7/2007*.

2. ☒ The allowed claim(s) is/are *1-17,22 and 23*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other *Clean Copy Allowed Claims*.

DETAILED ACTION

Introduction

1. This communication is in response to the Applicants' communication dated May 7, 2007. Claims 1-6 and 8-17 were amended. Claims 1-17 of the application are pending.

Examiner's Amendment

2. Authorization for this examiner's amendment was given in a telephone conversation by Mr. Shaun Montana on June 20, 2007.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to the applicants, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. In the claims:

Replace claims 1-5 with:

1. A method of managing browser sessions, comprising:

establishing a browser session at a primary server process, resulting in generation of a session state, on receipt of a request for a web page from a client;

directing the request from the browser session at the primary server process to a web page at a secondary server process;

sending a web page from the secondary server process to the client wherein the web page includes a heartbeat page element that transmits heartbeat messages to the primary server process;

maintaining, at the primary server process, the session state during communications between the client and the secondary server process; and

displaying the web page on a client display device, while maintaining communication with the primary and secondary server processes.

2. The method of claim 1 further comprising:

the secondary server process providing, to the client, a web page including a monitor,

the monitor detecting whether the primary server process is available from responses to the heartbeat messages.

3. The method of claim 1 further comprising:

providing, from the secondary server process to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

4. The method of claim 1 further comprising:

providing, from the secondary server process to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

5. The method of claim 1 further comprising:

accessing data from the session state of the browser being maintained at the primary server process by transmission of the heartbeat messages.

Replace claims 8-17 with:

8. A method of managing browser sessions, comprising:

establishing a browser session at a first server, resulting in generation of a session state at the first server, on receipt of a request for a web page from a client;

redirecting from the browser session at the first server to a web page at a second server;

receiving, at the client, the web page from the second server, the web page including a heartbeat page element;

transmitting heartbeat messages from the heartbeat page element to the first server to maintain the session state at the first server while the client is continuing to communicate with the second server; and

displaying the web page on a client display device, while maintaining communication with the first and second servers.

9. The method of managing browser sessions of claim 8, further comprising:

the secondary server providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

10. The method of managing browser sessions of claim 8, further comprising:

the secondary server providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

11. A system of managing browser sessions, comprising:

a first server and a second server providing individual processes of a common workflow;

the first server receiving a request for a web page from a client;

the first server establishing a browser session with the client, resulting in generation of a session state at the first server;

the first server redirecting the client from the browser session at the first server to a web page at the second server;

the second server receiving a request for a web page from the client;

the second server communicating the web page to the client, the web page including a heartbeat page element;

the client transmitting heartbeat messages from the heartbeat page element to the first server;

the first server receiving heartbeat messages from the heartbeat page element, resulting in maintenance of the session state at the first server while the client communicates with the second server; and

displaying the web page on a client display device, while maintaining communication with the first and second servers.

12. The system of managing browser sessions of claim 11, further comprising:

the secondary server providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

13. The system of managing browser sessions of claim 11, further comprising:

the secondary server providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

14. An article of manufacture comprising a computer-readable storage medium including computer instructions therein which when executed on a computer perform a method of managing browser sessions, the method comprising:

establishing a browser session at a primary server process, resulting in generation of a session state, on receipt of a request for a web page from a client;

directing the request from the browser session at the primary server process to a web page at a secondary server process;

sending a web page from the secondary server process to the client wherein the web page includes a heartbeat page element that transmits heartbeat messages to the primary server process;

maintaining, at the primary server process, the session state during communications between the client and the secondary server process; and

displaying the web page on a client display device, while maintaining communication with the primary and secondary server processes.

15. An article of manufacture comprising a computer-readable storage medium including computer instructions therein which when executed on a computer perform a method of managing browser sessions, the method comprising:

establishing a browser session at a first server, resulting in generation of a session state at the first server, on receipt of a request for a web page from a client;

redirecting from the browser session at the first server to a web page at a second server;

receiving, at the client, the web page from the second server, the web page including a heartbeat page element;

transmitting heartbeat messages from the heartbeat page element to the first server to maintain the session state at the first server while the client is continuing to communicate with the second server; and

displaying the web page on a client display device, while maintaining communication with the first and second servers.

16. The article of manufacture comprising a computer-readable storage medium of claim 14, wherein the method further comprising:

the secondary server process providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

17. An article of manufacture comprising a computer-readable storage medium of claim 14, wherein the method further comprising:

the secondary server process providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

Add claims 22-23:

22. The article of manufacture comprising a computer-readable storage medium of claim 15, wherein the method further comprising:

the secondary server providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

23. An article of manufacture comprising a computer-readable storage medium of claim 15, wherein the method further comprising:

the secondary server providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

A clean copy of allowed claims is attached.

Reasons for Allowance

4. Claims 1-17 and 22-23 of the application are allowed over prior art of record.

5. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

The closest prior art of record shows:

(1) a system including a Sybase server connected to an application server by a network; a client browser to have access to Sybase server through the application server; the Sybase server includes Sybase database and a notification server; the client makes connection with a notifier object in the application server using an applet; the notifier object in the application server sends out a heartbeat every ten seconds; when the viewed data changes, the notification bean in the application server informs the notifier object that it has received a change or update notification; this causes the notifier object in the application server to change or refresh the text of the heartbeat message; the client continuously monitors the heartbeat message and determines when the heartbeat message has changed; it then calls the application server to fetch the vector of

notifications; other client functions then update the user's view of data (**Tsuji et al.,** U.S. Patent Application 2003/0221068);

(2) a security methodology for connecting users to an enterprise network or to a public network; the system implements a "keep alive message" between a client and a server, called heartbeat; the keep alive message is sent once every predefined period, e.g., 1 minute from a client to a server; when the client application fails the heartbeat consecutively for a predefined period of time, e.g., one hour, the server treats the client application as having exited by closing the application and performing cleanup operations associated with the application; this mechanism assists in restricting authorized access by effectively preventing sessions from remaining open in the event of client Application failure or user neglect (**Devine et al.,** U.S. Patent Application 2003/0041263);

(3) a system and method for facilitating secure communication between a web browser and an application server; an application server actively sends out requests to web severs to connect browsers for service sessions between the browsers and application servers; a plurality of intermediate web servers screen and route browser requests destined for particular application servers; the web servers monitor the application servers to determine if the application servers terminate the connection with the web servers; the web server creates a monitoring thread to monitor the application servers once each session begins; this is done by sending a heartbeat message to the application server; an acknowledge will be sent by the application server indicating that the application server is still active; if the heartbeat is received, the status of the application server is updated (**Lin et al.,** U.S. Patent Application 2002/0073211); and

(4) a system for monitoring events occurring in a networked browser, while the browser is processing web-based transactions wherein the data from the monitoring process is sent to a computer other than the one on which the browser is executing and the computer from which the transaction is down loaded; the system invokes a monitoring function on a networked computer, by accessing a web page from a web server, updating the web page by inserting a script tag in the web page, wherein the script tag includes a location information for a function for monitoring events on a networked computer other than the web server; retrieving the monitoring function based on the information in the script tag; invoking the monitoring function to monitor an event on the client browser; sending the monitored data to a measurement computer which is other than the web server (**Eshghi et al.**, U.S. Patent Application 2002/0165954).

None of these references taken either alone or in combination with the prior art of record discloses a method of managing browser sessions, specifically including:

(Claim 1) "sending a web page from the secondary server process to the client wherein the web page includes a heartbeat page element that transmits heartbeat messages to the primary server process;

maintaining, at the primary server process, the session state during communications between the client and the secondary server process".

None of these references taken either alone or in combination with the prior art of record discloses a method of managing browser sessions, specifically including:

(Claim 8) "receiving, at the client, the web page from the second server, the web page including a heartbeat page element;

transmitting heartbeat messages from the heartbeat page element to the first server to maintain the session state at the first server while the client is continuing to communicate with the second server".

None of these references taken either alone or in combination with the prior art of record discloses a system of managing browser sessions, specifically including:

(Claim 11) "the second server communicating the web page to the client, the web page including a heartbeat page element;

the client transmitting heartbeat messages from the heartbeat page element to the first server;

the first server receiving heartbeat messages from the heartbeat page element, resulting in maintenance of the session state at the first server while the client communicates with the second server".

None of these references taken either alone or in combination with the prior art of record discloses an article of manufacture comprising a computer-readable storage medium including computer instructions therein which when executed on a computer perform a method of managing browser sessions, specifically including:

(Claim 14) "sending a web page from the secondary server process to the client wherein the web page includes a heartbeat page element that transmits heartbeat messages to the primary server process;

maintaining, at the primary server process, the session state during communications between the client and the secondary server process".

None of these references taken either alone or in combination with the prior art of record discloses an article of manufacture comprising a computer-readable storage medium including computer instructions therein which when executed on a computer perform a method of managing browser sessions, specifically including:

(Claim 15) "receiving, at the client, the web page from the second server, the web page including a heartbeat page element;

transmitting heartbeat messages from the heartbeat page element to the first server to maintain the session state at the first server while the client is continuing to communicate with the second server".

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez, can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Thangavelu
Art Unit 2123
June 20, 2007

Clean Copy of Allowed Claims

1. A method of managing browser sessions, comprising:

establishing a browser session at a primary server process, resulting in generation of a session state, on receipt of a request for a web page from a client;

directing the request from the browser session at the primary server process to a web page at a secondary server process;

sending a web page from the secondary server process to the client wherein the web page includes a heartbeat page element that transmits heartbeat messages to the primary server process;

maintaining, at the primary server process, the session state during communications between the client and the secondary server process; and

displaying the web page on a client display device, while maintaining communication with the primary and secondary server processes.

2. The method of claim 1 further comprising:

the secondary server process providing, to the client, a web page including a monitor,

the monitor detecting whether the primary server process is available from responses to the heartbeat messages.

3. The method of claim 1 further comprising:

providing, from the secondary server process to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

4. The method of claim 1 further comprising:

providing, from the secondary server process to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

5. The method of claim 1 further comprising:

accessing data from the session state of the browser being maintained at the primary server process by transmission of the heartbeat messages.

6. The method of claim 1 further comprising:

providing a proxy page element in the web page;

receiving a request for a partial page update from the proxy page element in response to an event triggered in the web page;

communicating modification instructions to the proxy page element for the partial page update to page content in the web page, the modification instructions affecting less than the entire page content in the web page.

7. The method of claim 1 wherein the heartbeat page element is a Frame element, an IFrame element, or a Layer element.

8. A method of managing browser sessions, comprising:

establishing a browser session at a first server, resulting in generation of a session state at the first server, on receipt of a request for a web page from a client;

redirecting from the browser session at the first server to a web page at a second server;

receiving, at the client, the web page from the second server, the web page including a heartbeat page element;

transmitting heartbeat messages from the heartbeat page element to the first server to maintain the session state at the first server while the client is continuing to communicate with the second server; and

displaying the web page on a client display device, while maintaining communication with the first and second servers.

9. The method of managing browser sessions of claim 8, further comprising:

the secondary server providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

10. The method of managing browser sessions of claim 8, further comprising:

the secondary server providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

11. A system of managing browser sessions, comprising:

a first server and a second server providing individual processes of a common workflow;

the first server receiving a request for a web page from a client;

the first server establishing a browser session with the client, resulting in generation of a session state at the first server;

the first server redirecting the client from the browser session at the first server to a web page at the second server;

the second server receiving a request for a web page from the client;

the second server communicating the web page to the client, the web page including a heartbeat page element;

the client transmitting heartbeat messages from the heartbeat page element to the first server;

the first server receiving heartbeat messages from the heartbeat page element, resulting in maintenance of the session state at the first server while the client communicates with the second server; and

displaying the web page on a client display device, while maintaining communication with the first and second servers.

12. The system of managing browser sessions of claim 11, further comprising:

the secondary server providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

13. The system of managing browser sessions of claim 11, further comprising:

the secondary server providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

14. An article of manufacture comprising a computer-readable storage medium including computer instructions therein which when executed on a computer perform a method of managing browser sessions, the method comprising:

establishing a browser session at a primary server process, resulting in generation of a session state, on receipt of a request for a web page from a client;

directing the request from the browser session at the primary server process to a web page at a secondary server process;

sending a web page from the secondary server process to the client wherein the web page includes a heartbeat page element that transmits heartbeat messages to the primary server process;

maintaining, at the primary server process, the session state during communications between the client and the secondary server process; and

displaying the web page on a client display device, while maintaining communication with the primary and secondary server processes.

15. An article of manufacture comprising a computer-readable storage medium including computer instructions therein which when executed on a computer perform a method of managing browser sessions, the method comprising:

establishing a browser session at a first server, resulting in generation of a session state at the first server, on receipt of a request for a web page from a client;

redirecting from the browser session at the first server to a web page at a second server;

receiving, at the client, the web page from the second server, the web page including a heartbeat page element;

transmitting heartbeat messages from the heartbeat page element to the first server to maintain the session state at the first server while the client is continuing to communicate with the second server; and

displaying the web page on a client display device, while maintaining communication with the first and second servers.

16. The article of manufacture comprising a computer-readable storage medium of claim 14, wherein the method further comprising:

the secondary server process providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

17. An article of manufacture comprising a computer-readable storage medium of claim 14, wherein the method further comprising:

the secondary server process providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.

18. Canceled.

19. Canceled.

20. Canceled.

21. Canceled.

22. The article of manufacture comprising a computer-readable storage medium of claim 15, wherein the method further comprising:

the secondary server providing, to the client, a web page including a page identifier and a monitor,

the client executing the monitor and checking the page identifier at regular intervals; and

the monitor detecting user inactivity if the page identifier is unchanged for a predetermined time.

23. An article of manufacture comprising a computer-readable storage medium of claim 15, wherein the method further comprising:

the secondary server providing, to the client, a web page including a page identifier and page content having a state identifier and a monitor,

the client executing the monitor and checking the state identifier at regular intervals; and

the monitor detecting server unavailability if the state identifier is unchanged for a predetermined time.